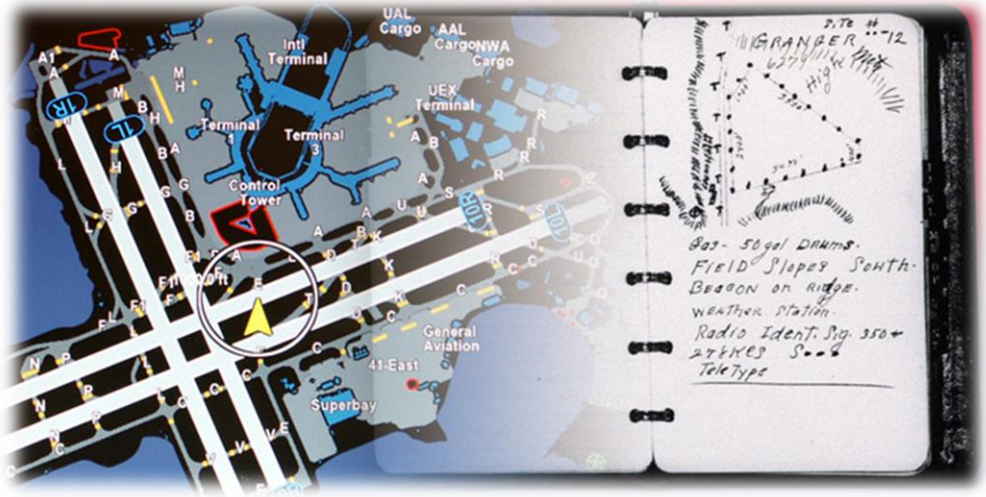
Transition from AIS to AIM – a Jeppesen View



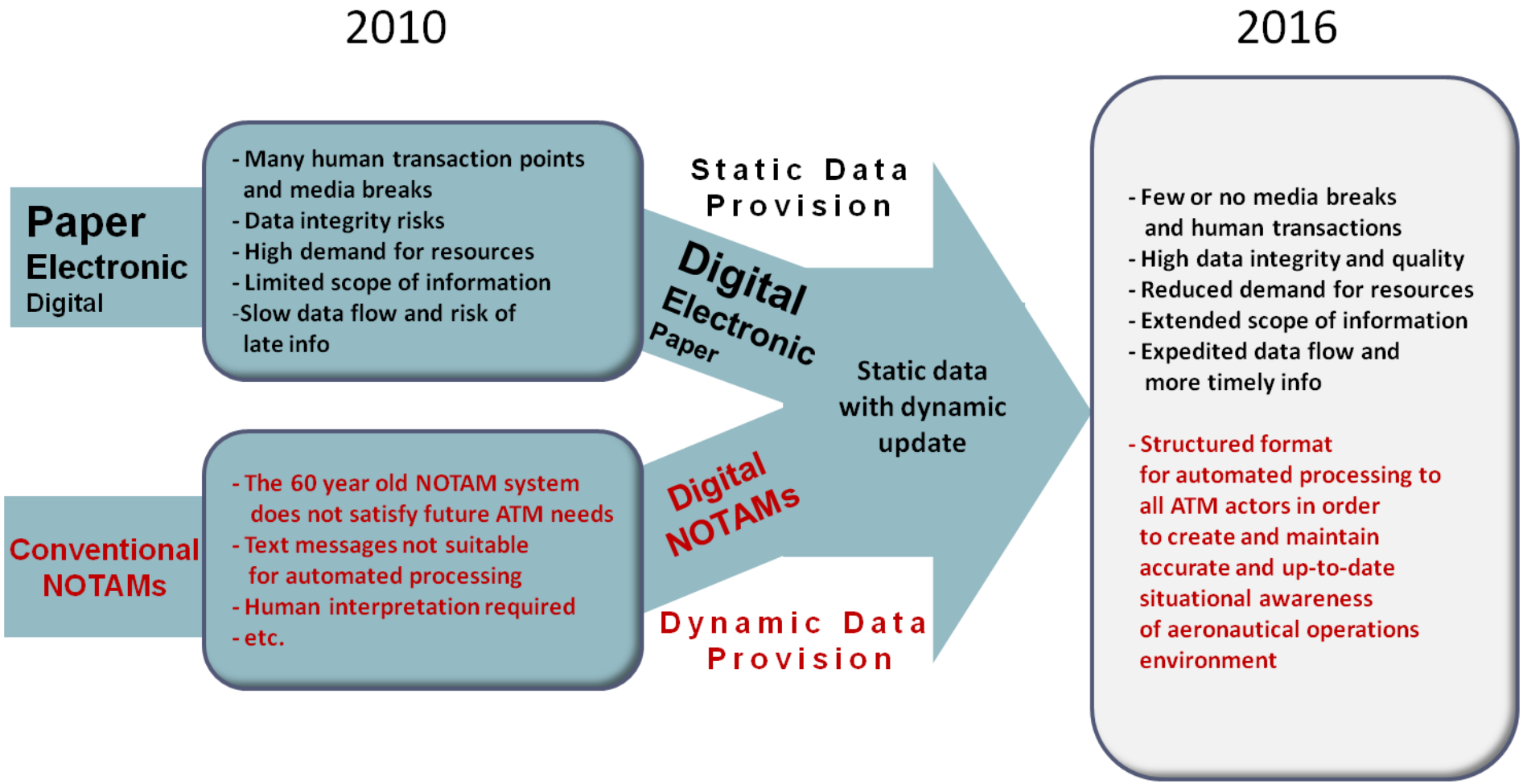
Volker Meyer

International Relations

Paris, France

27 October, 2016

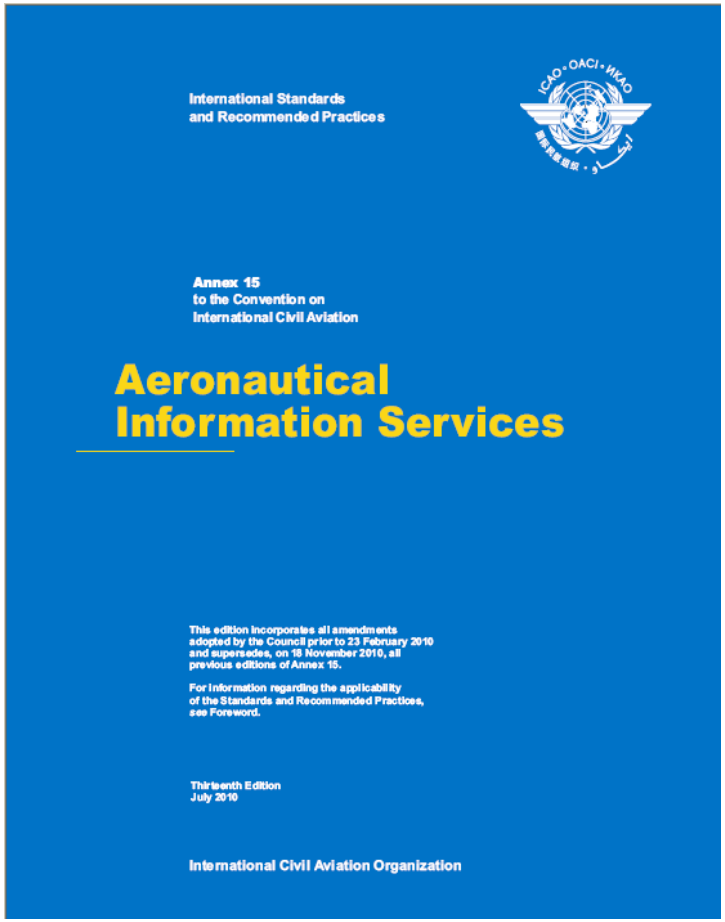
AIS to AIM


2010
2016
Paper
Electronic
Digital
- Many human transaction points and media breaks
- Data integrity risks
- High demand for resources
- Limited scope of information
-Slow data flow and risk of late info
Conventional NOTAMs
- The 60 year old NOTAM system does not satisfy future ATM needs
- Text messages not suitable for automated processing
- Human interpretation required
- etc.
Static Data Provision
Digital
Electronic
Paper
Digital NOTAMs
Dynamic Data Provision
Static data with dynamic update
- Few or no media breaks and human transactions
- High data integrity and quality
- Reduced demand for resources
- Extended scope of information
- Expedited data flow and more timely info
- Structured format for automated processing to all ATM actors in order to create and maintain accurate and up-to-date situational awareness of aeronautical operations environment

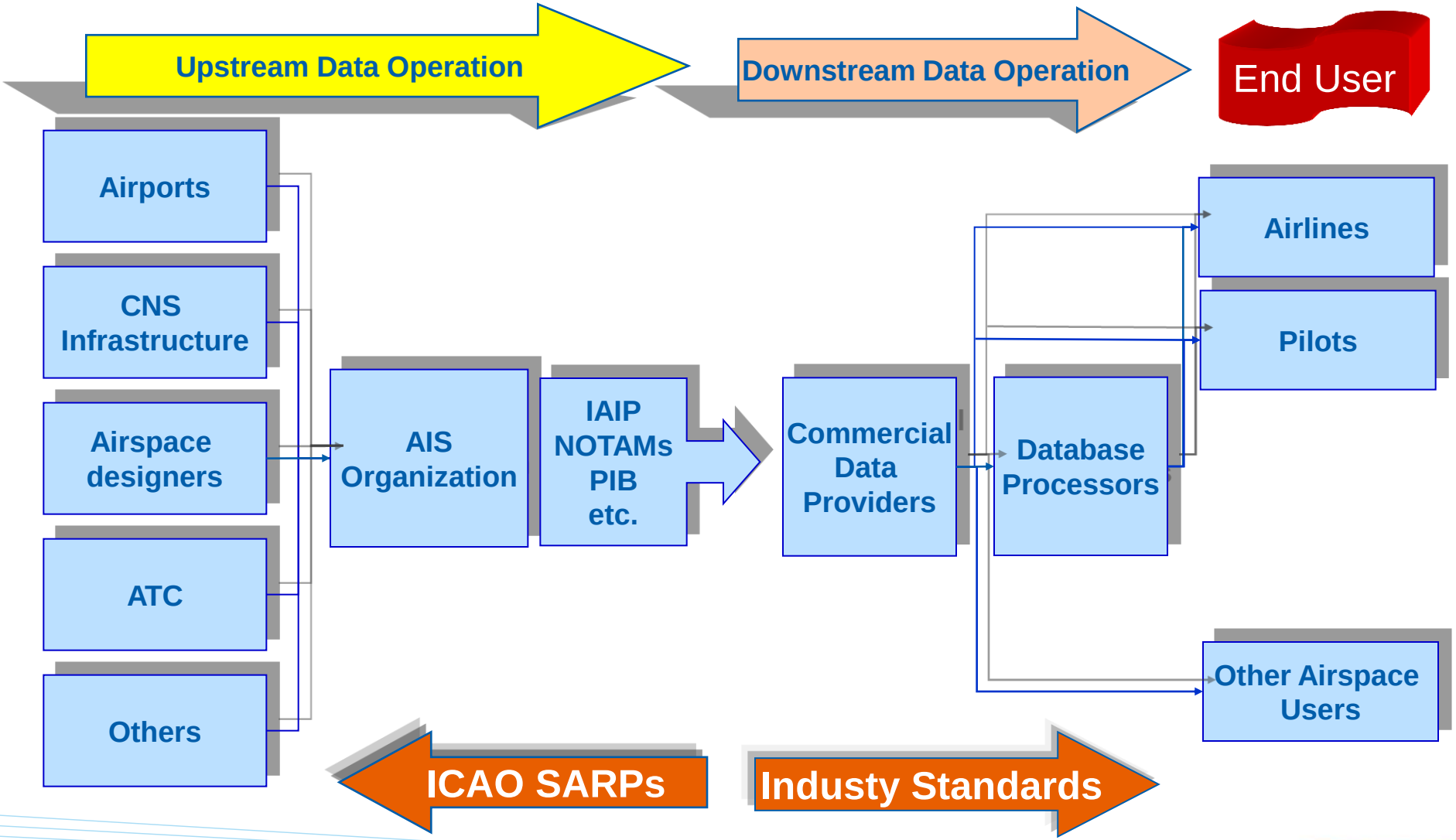
ICAO Annex 15 – Aeronautical Information Services – Product Centric

2.2.2 An AIS shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of the State as well as those areas over the high seas in which the State is responsible for the provision of air traffic services. Aeronautical data and aeronautical information shall be provided as an **Integrated Aeronautical Information Package**.

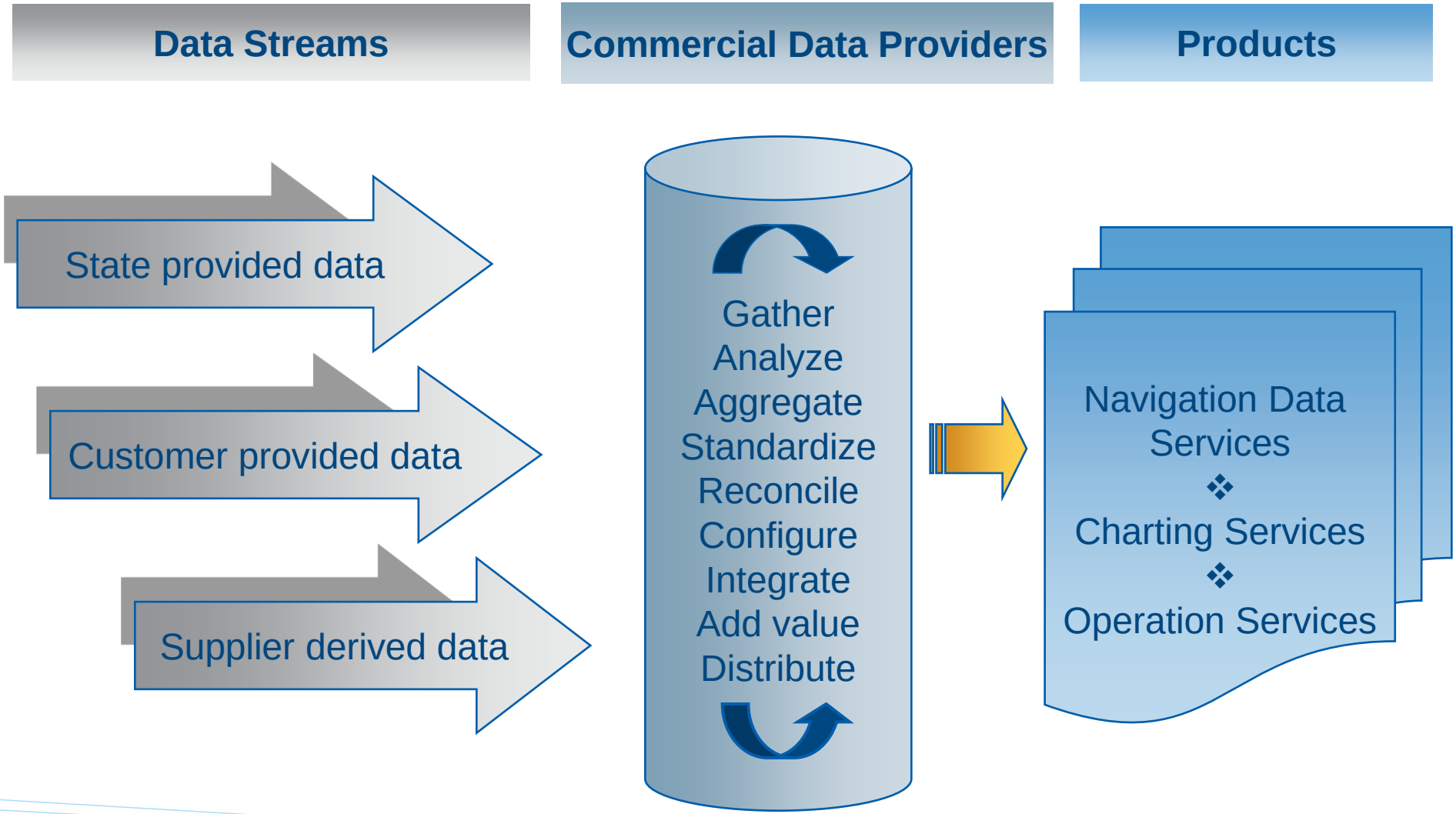
4.1.1 An **AIP** shall contain, in three parts, …, current … aeronautical information of a lasting character essential to air navigation …



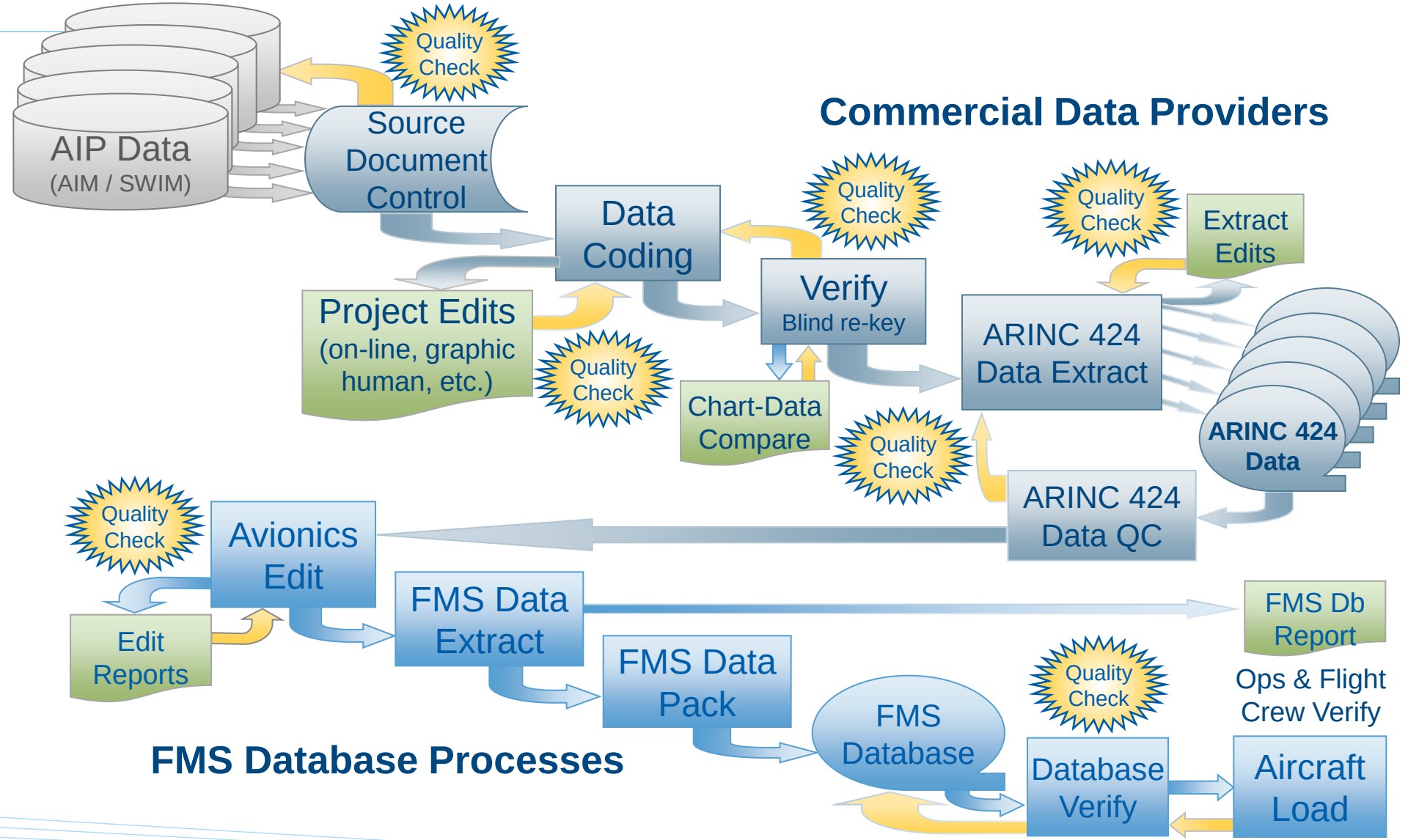
Upstream and downstream actors of the data supply chain



Aeronautical Data Flow



Aeronautical Data Process



Aeronautical Data Supply Chain
Four Tiers of AIM Stakeholders

Each has different roles, responsibilities, obligations and needs

State Civil Aviation Authority

State government organization responsible for the safety, regularity and efficiency of national and international aviation within its borders.

State Designated Service Provider

An organization designated by a State to fulfill State obligations for AIS provision. These are often *corporatized* organizations referred to as ANSPs.

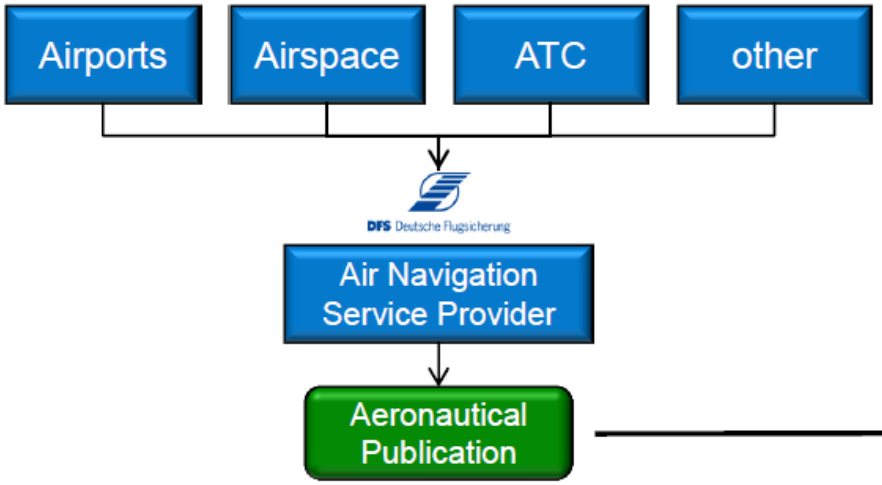
Commercial Service Provider

An organization, generally a corporation, that creates value-added services from the „official“ facts, data and information about the State aviation system.

End user

Pilots, aircraft operators, ATS organizations, flight support organizations and other entities that use aeronautical information to support safe, efficient and orderly flight operations.

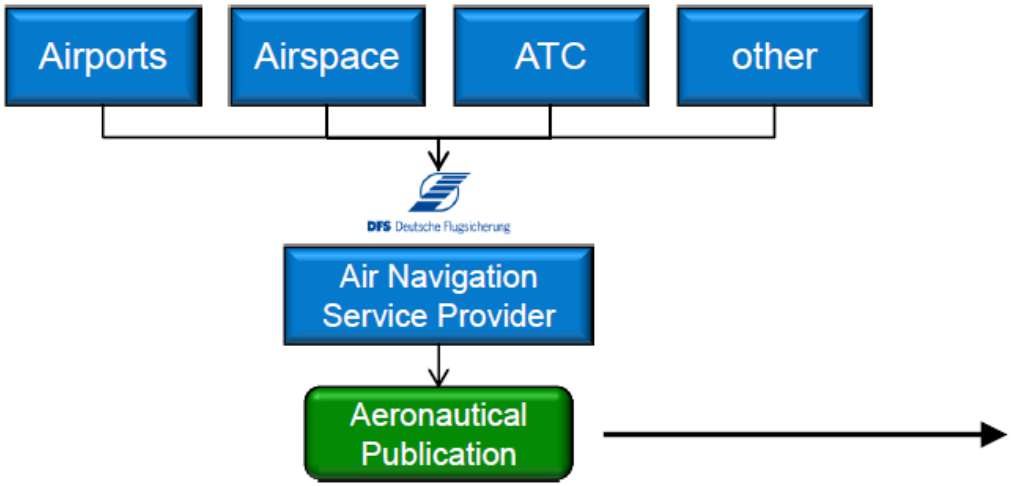
Standardizing Aeronautical Information

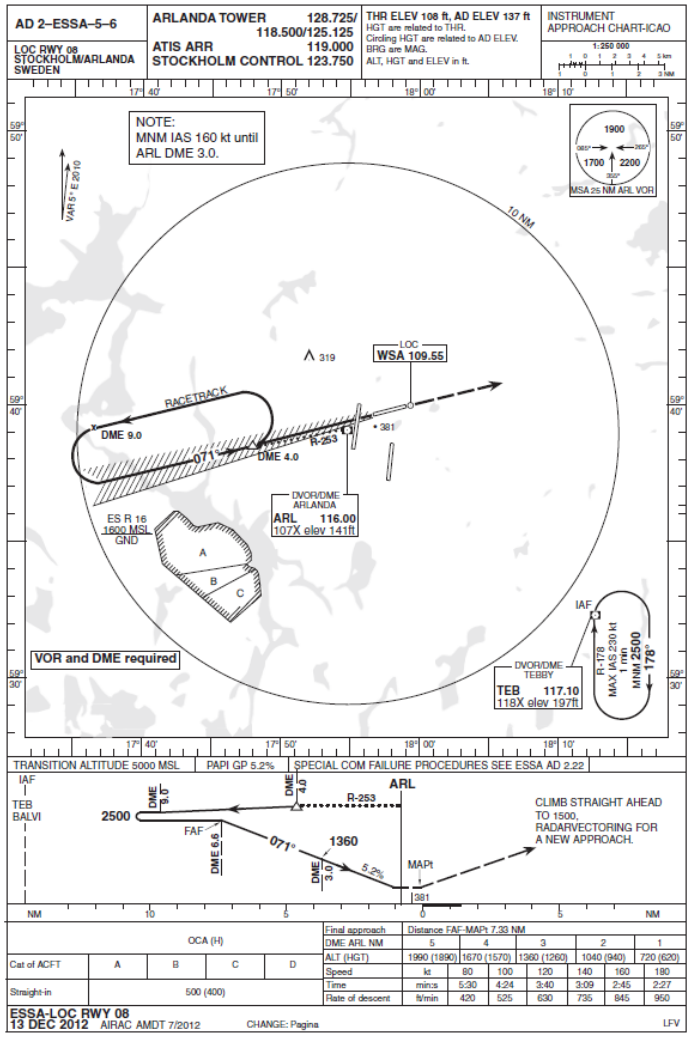


Annex 15:

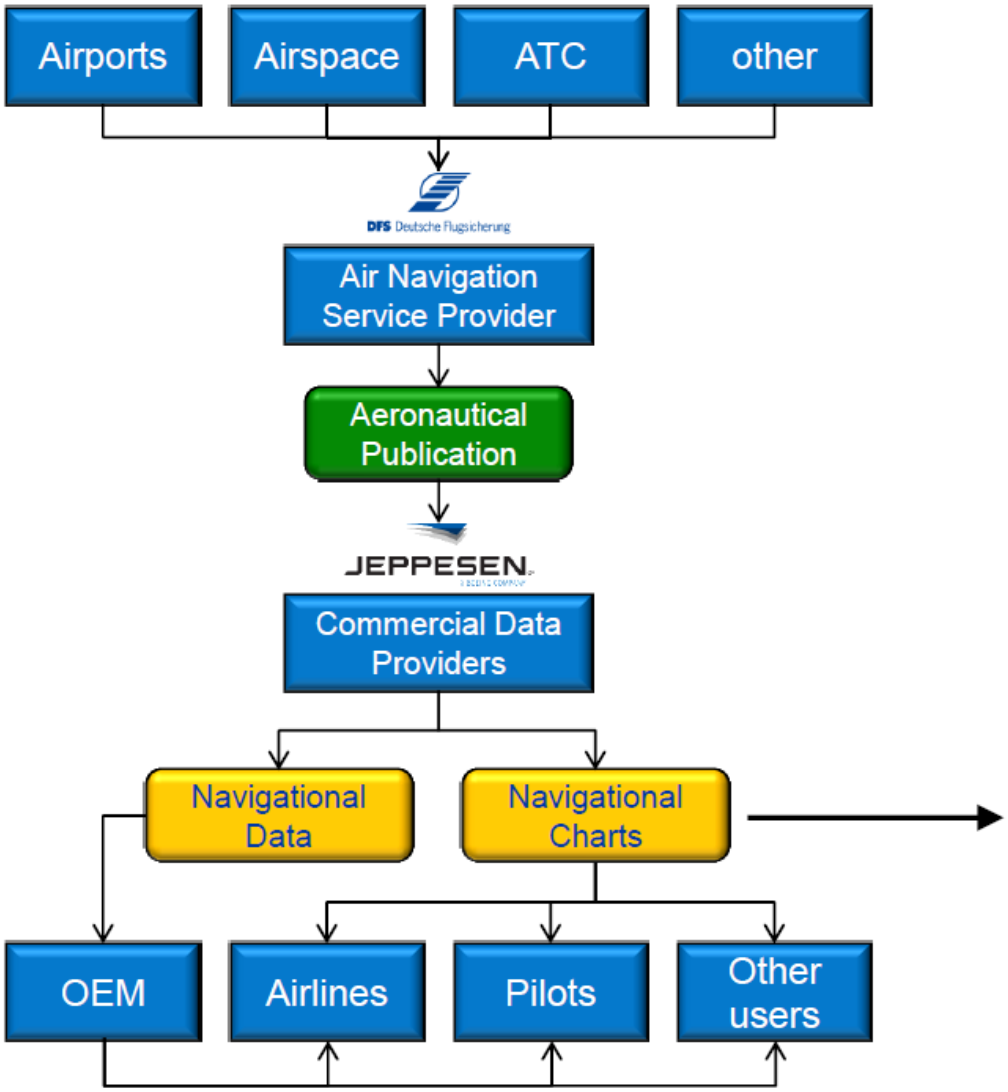
3.1.1.2 Each Contracting State shall take all necessary measures to ensure that the aeronautical information/data it provides relating to its own territory, as well as areas in which the State is responsible for air traffic services outside its territory, is adequate, of required quality and timely.

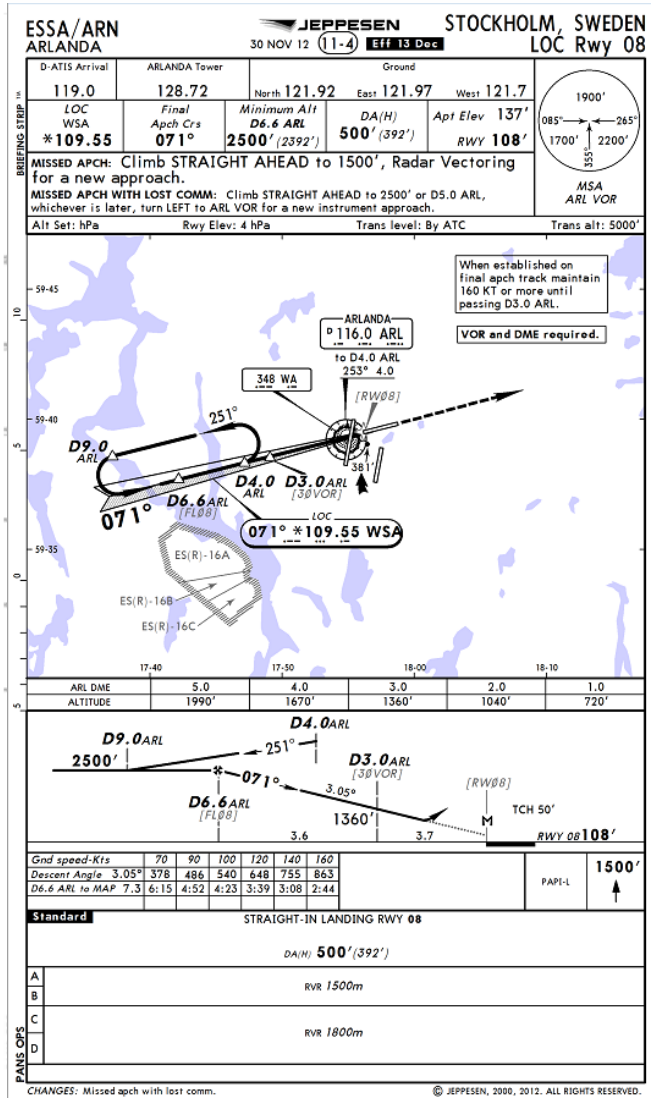
Standardizing Aeronautical Information



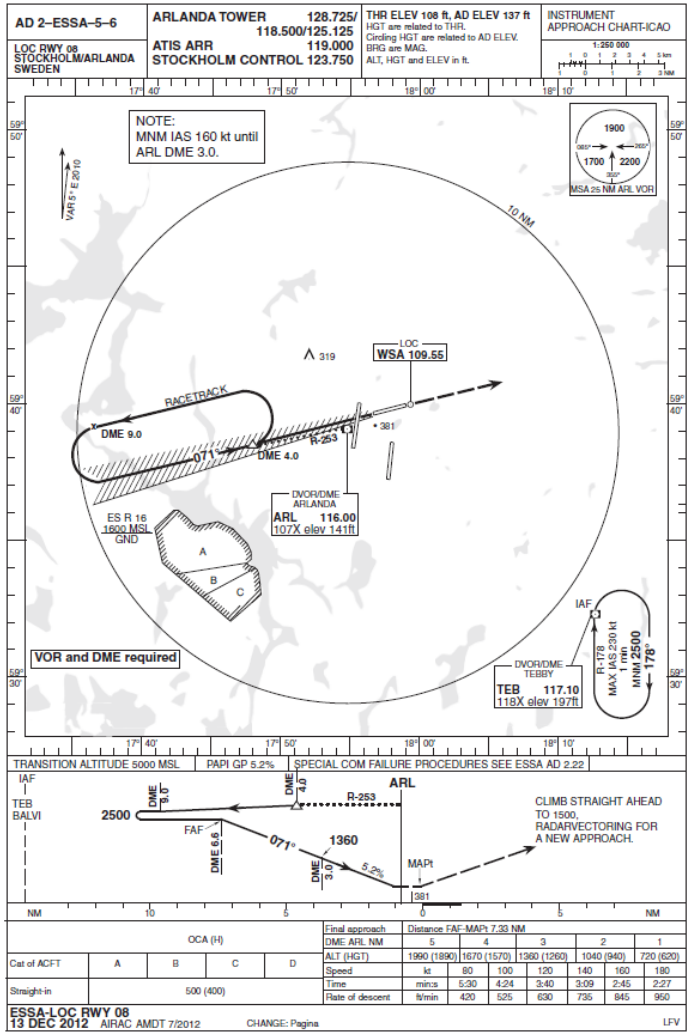


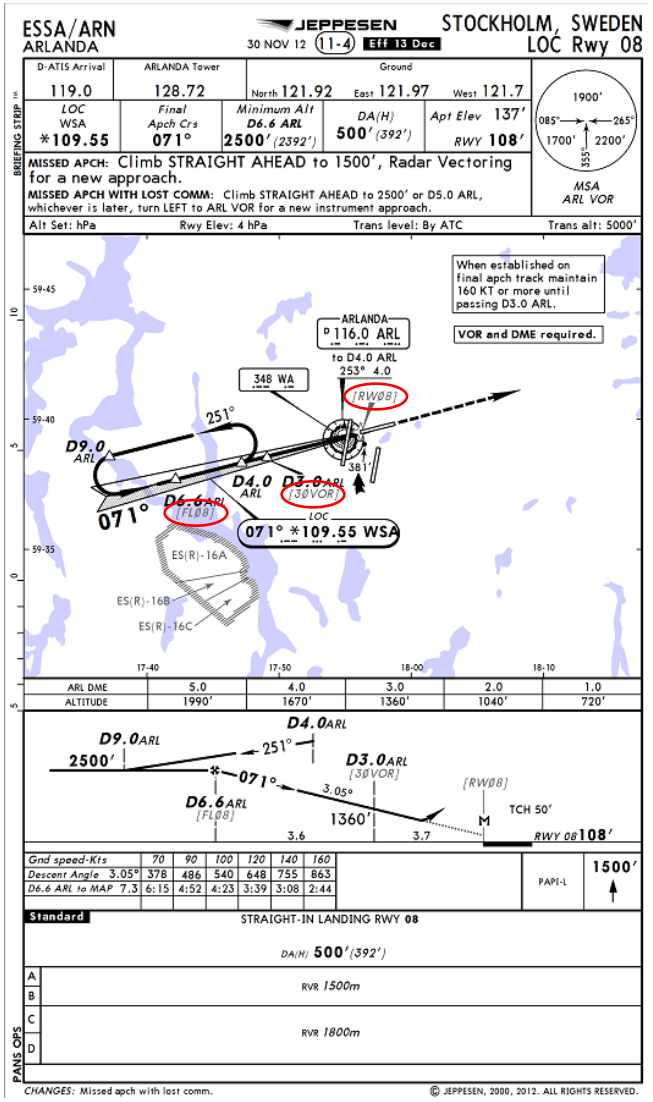
Standardizing Aeronautical Information





Jeppesen Approach Charts

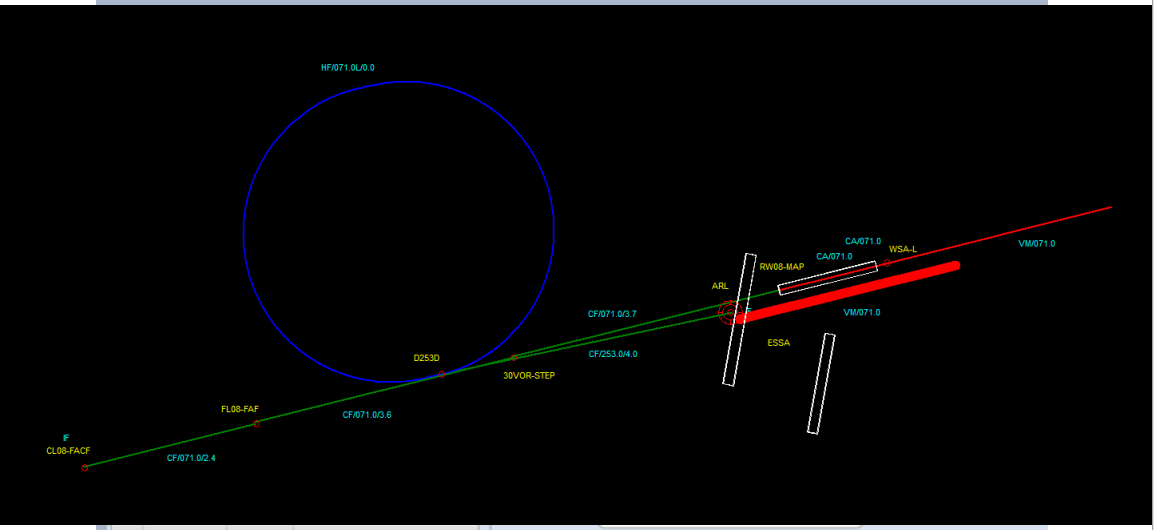




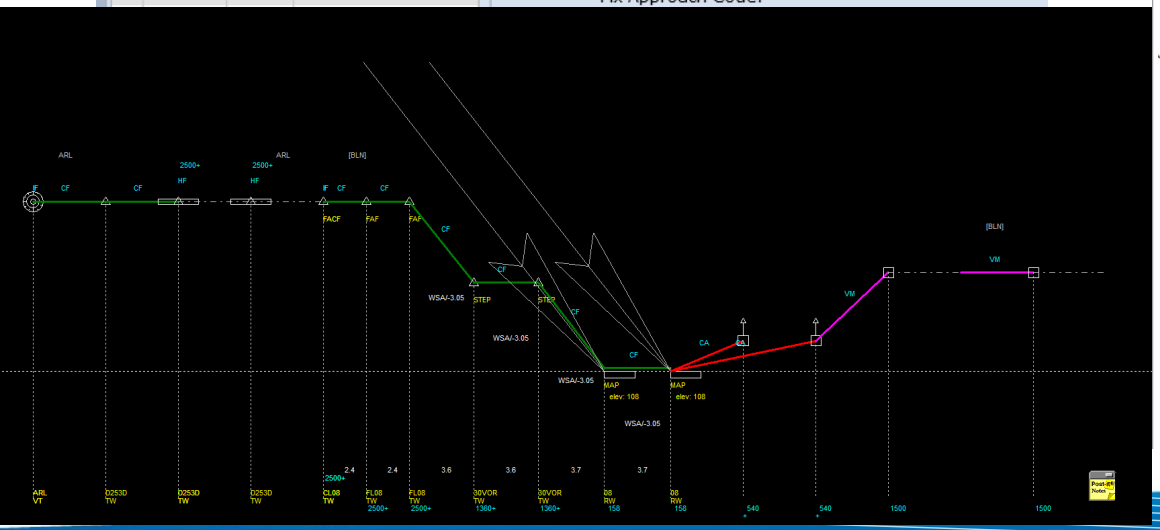
Jeppesen NavData

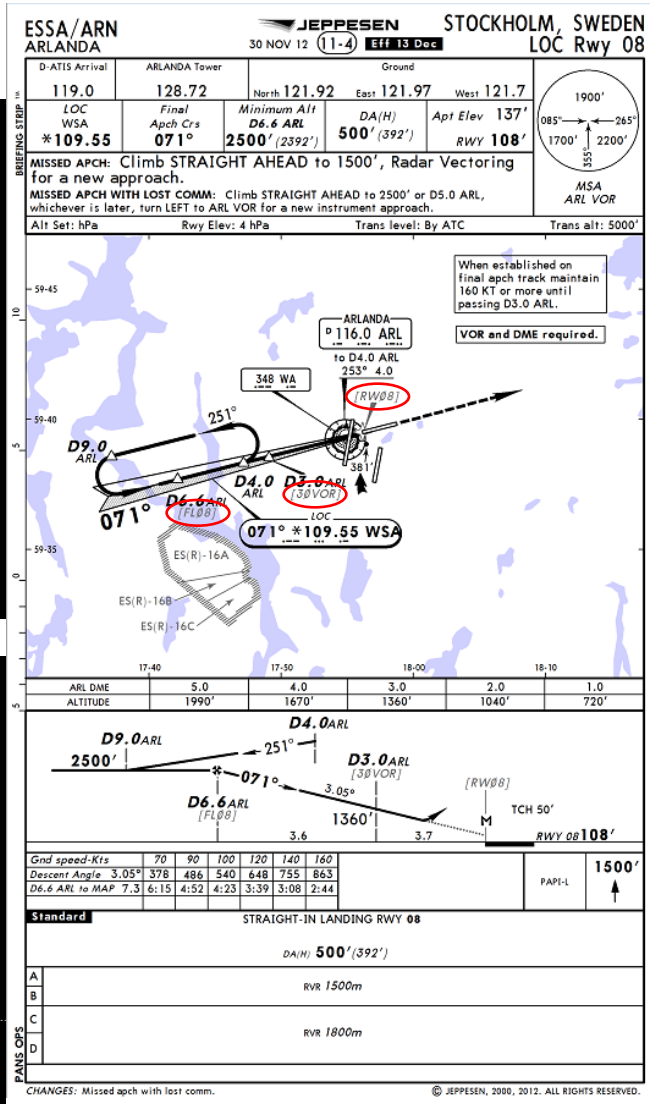
Terminal Procedure: @ESSA: L08 APL APLCD

Transition: Final

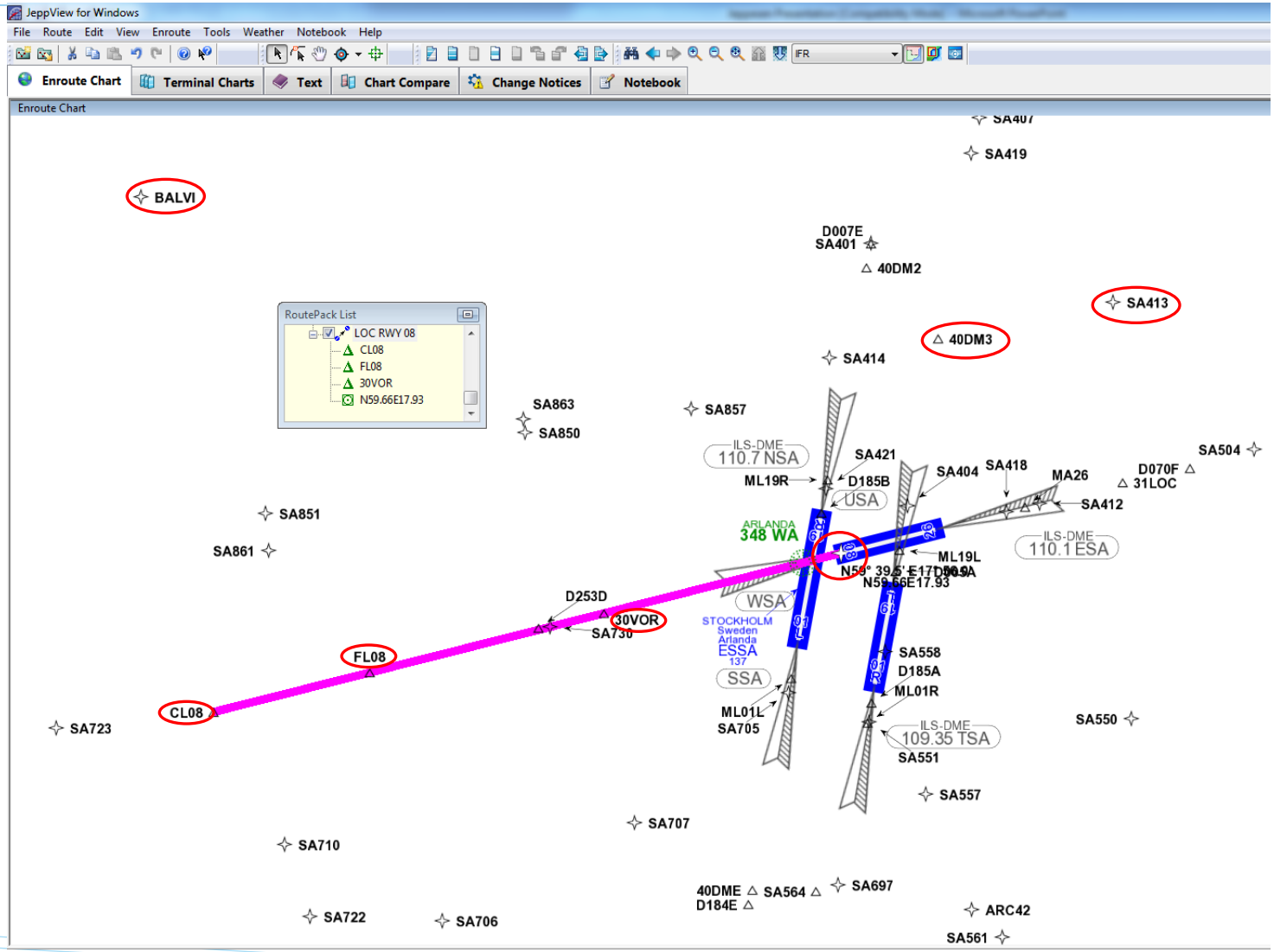


Fix Approach Code:





Jeppesen NavData

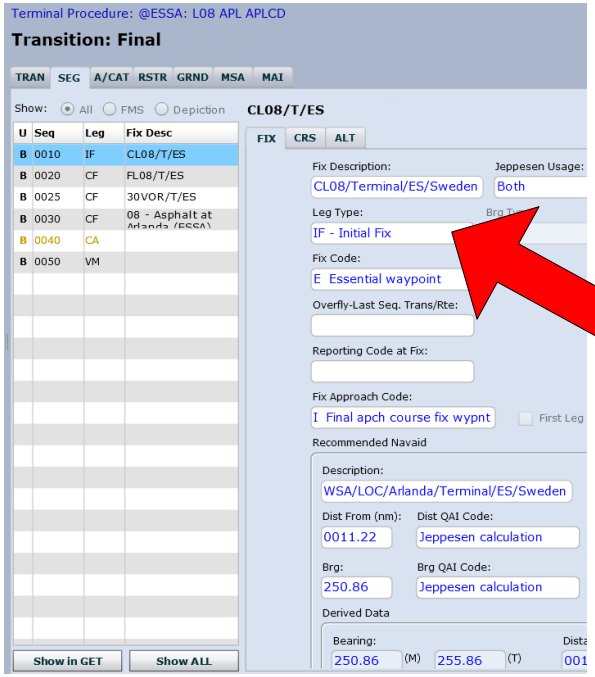


Aviation Data Management
Flight information Quality Review

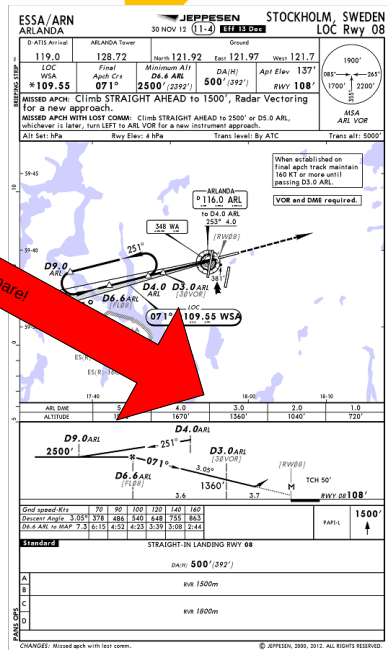
Procure Source → Analyze Source → Maintain DB → Verify & Commit DB → FIQR

Flight Information Quality Review

- Comparison of Jeppesen Products
- Jeppesen Chart and ARINC 424 data review
- Eliminates potential discrepancies



Compare!



ICAO AIS-AIM Roadmap

- **Phase 1 – Consolidation**
  - Quality Requirements
  - AIRAC adherence
  - Implement coordinate reference standard (WGS-84)
  - Provision of terrain and obstacle data
- **Phase 2 – Going Digital**
  - Introduce data driven processes
  - eAIP
  - Improve quality and availability
- **Phase 3 – Information Management**
  - Fully digital information management
  - Digital information exchange
  - Further quality and availability enhancement

ICAO AIM Document Framework

Document	Function and Content	Primary Audience
Annex 15	Requirements and performance specifications	States
PANS-AIM	Procedures, processes, formats, technical specifications	States and service delivery organizations
AIS (AIM) Manual	Best practices; guidance on application and implementation	Service delivery organizations

- Specifications published as Procedures for Air Navigation Services (PANS) may provide a means to provide for increased harmonisation within the domain of AIS/AIM as well as provide a vehicle for the emerging technical requirements of AIM.

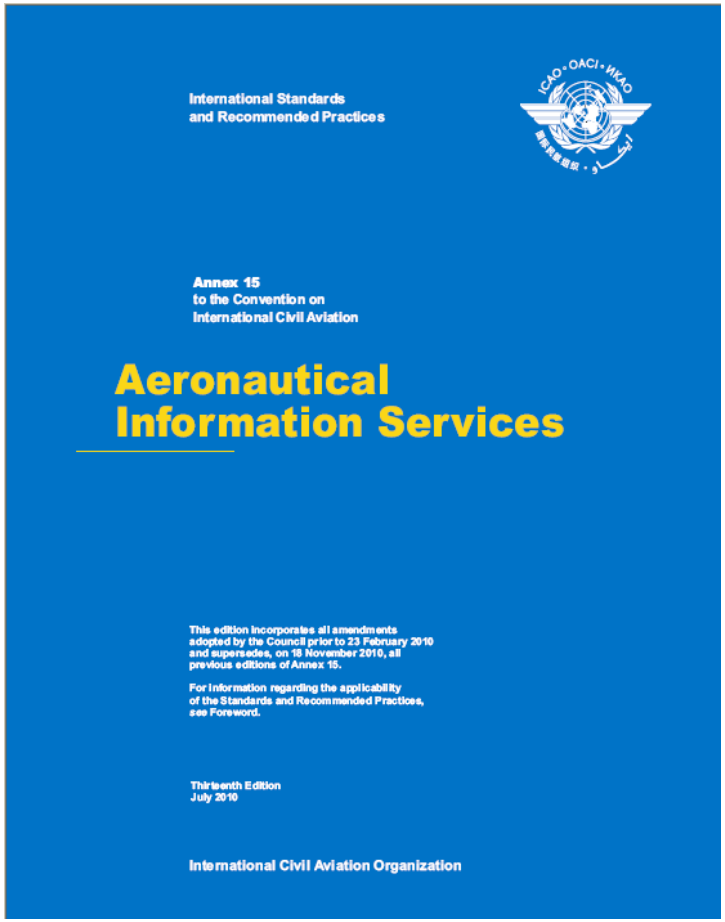
- PANS-AIM, spans the gap between the guidance contained in Doc 8126 and the SARPs embodied in Annex 15.

New ICAO Annex 15 – Aeronautical Information Services – Data Centric

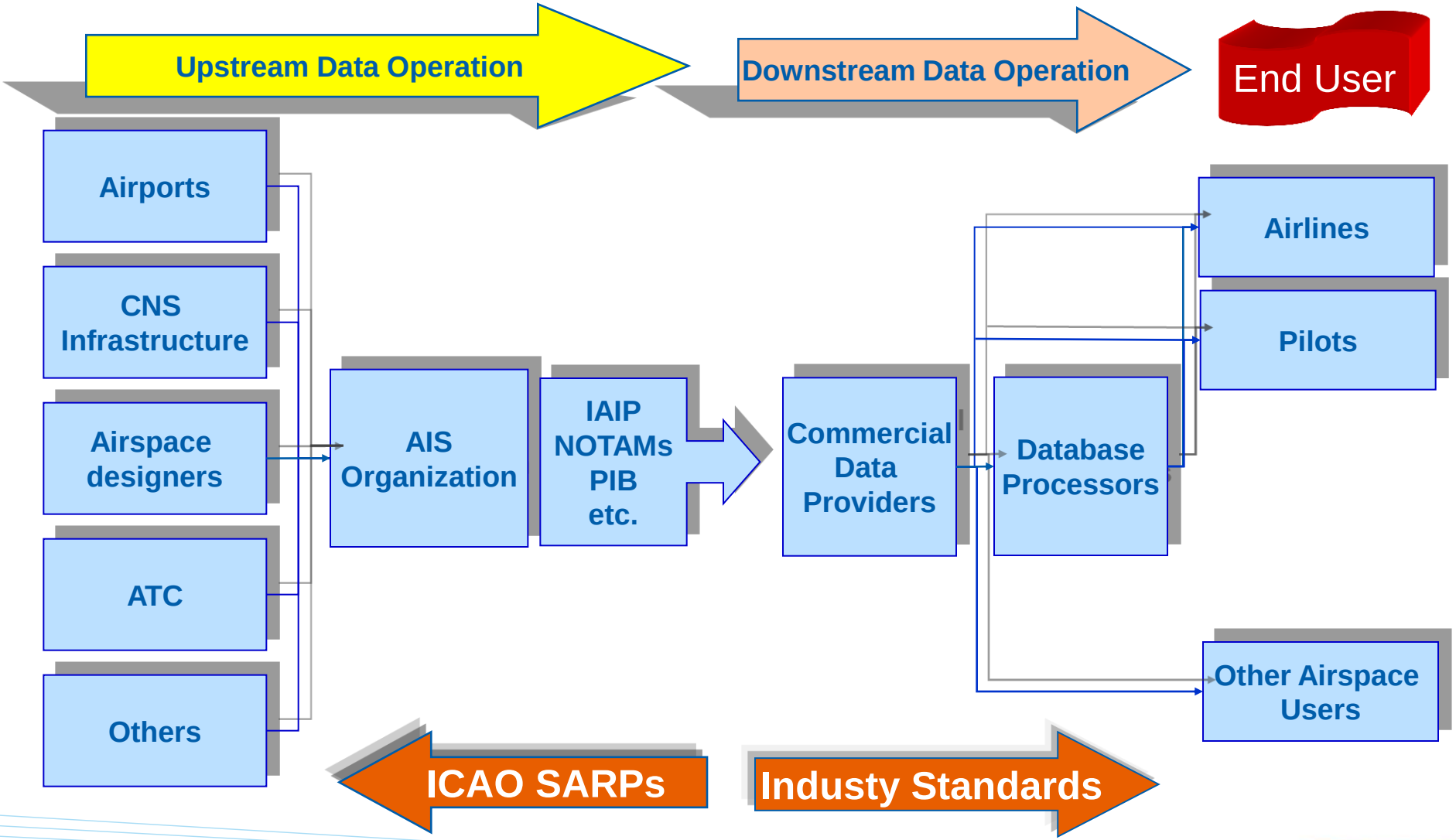
Data Catalogue

Table A1-1 Aerodrome/Heliport data

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aerodrome / Heliport				A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.					-	-
	Designator			Designator of the aerodrome / heliport						
		ICAO location indicator	Text	The four letter ICAO location indicator of the aerodrome/heliport, as listed in ICAO DOC 7910 (Location Indicators).	if any					
		Designator IATA	Text	The identifier that is assigned to a location in accordance with rules (resolution 767) governed by the International Air Transport Association (IATA).	if any					
		Other	Text	A locally defined airport identifier, if other than an ICAO Location Indicator						
	Name		Text	The primary official name of an aerodrome as designated by an appropriate authority.						
	Served city		Text	The full name (free text) of the city or town the aerodrome/heliport is serving						
	Type of traffic permitted									
		International_national	Code list	Indication if international and/or national flights are permitted at the aerodrome/heliport						
		IFR_VFR	Code list	Indication if IFR and/or VFR flights are permitted at the aerodrome/heliport						
		Sched_nonsched	Code list	Indication if scheduled and/or nonscheduled flights are permitted at the aerodrome/heliport						
		Civil_military	Code list	Indication if civil commercial aviation and/or general aviation and/or military flights are permitted at the aerodrome/heliport						
		Restricted_use	Text	Indication if an aerodrome or heliport not open for the public (Only for the use of the owners).						

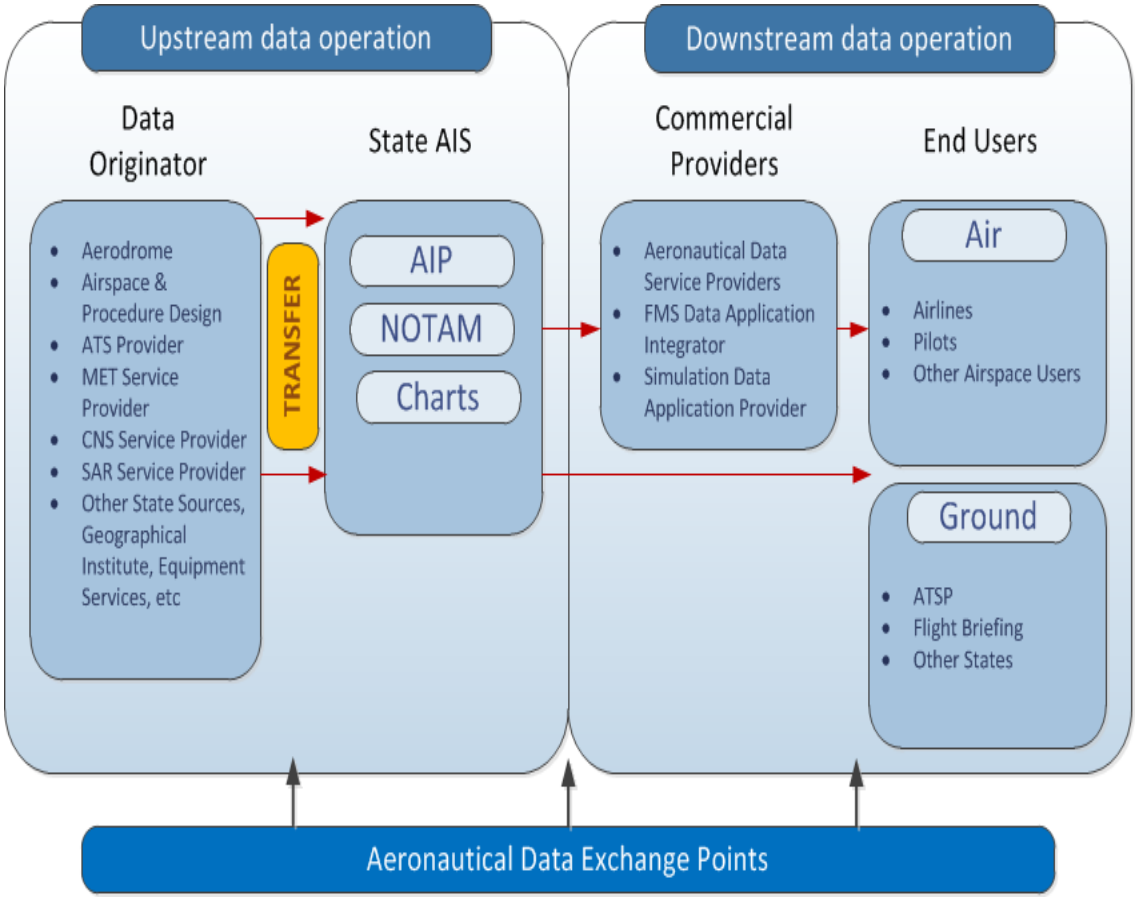


Upstream and downstream actors of the data supply chain



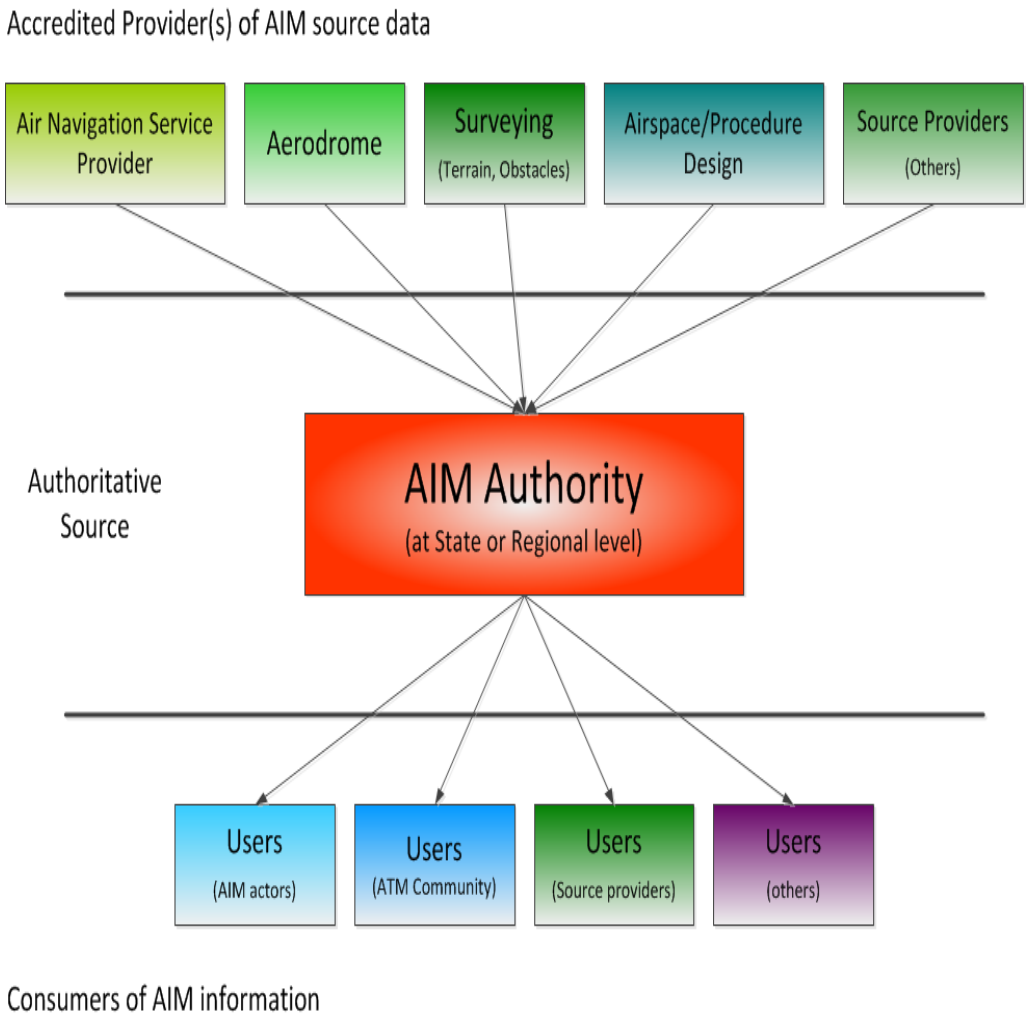
From the traditional AIS…

- Reliance on manual processing and manipulation;
- “Point to point” or “application to application” exchanges
- Message size limitations;
- Duplication of information, **Inconsistencies**;
- Potential **lack of synchronization** of aeronautical data in navigation databases



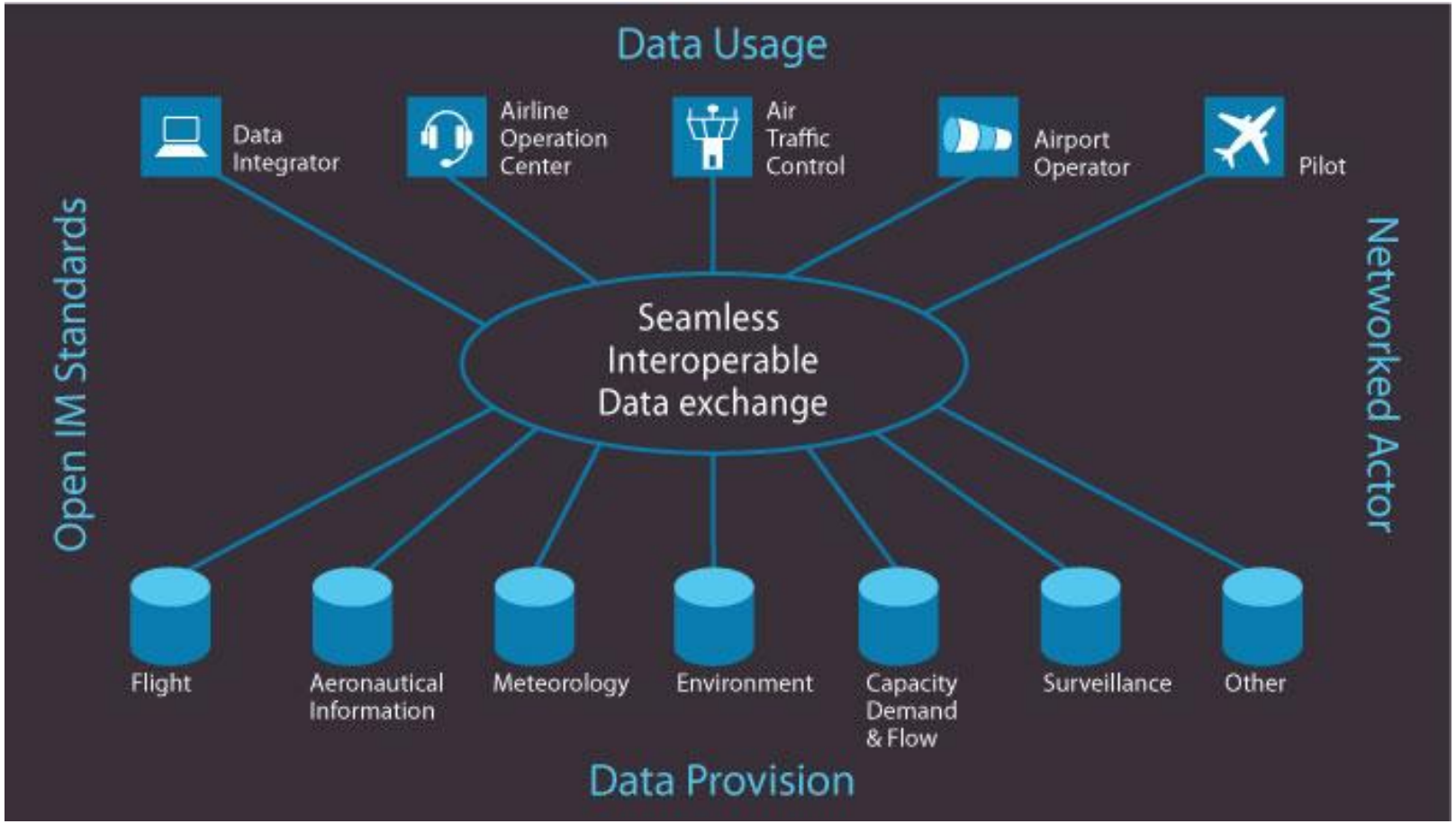
… to the AIM environments

- Separation of information provision and information consumption
- **Quality-assured aeronautical information**;
- Aeronautical information coming from **authoritative sources**;
- Aeronautical information is **digitally represented**;
- Aeronautical information is **globally harmonized**;
- Aeronautical information is **interoperable** ;
- The **temporality** of aeronautical information is adequate for operational decision making

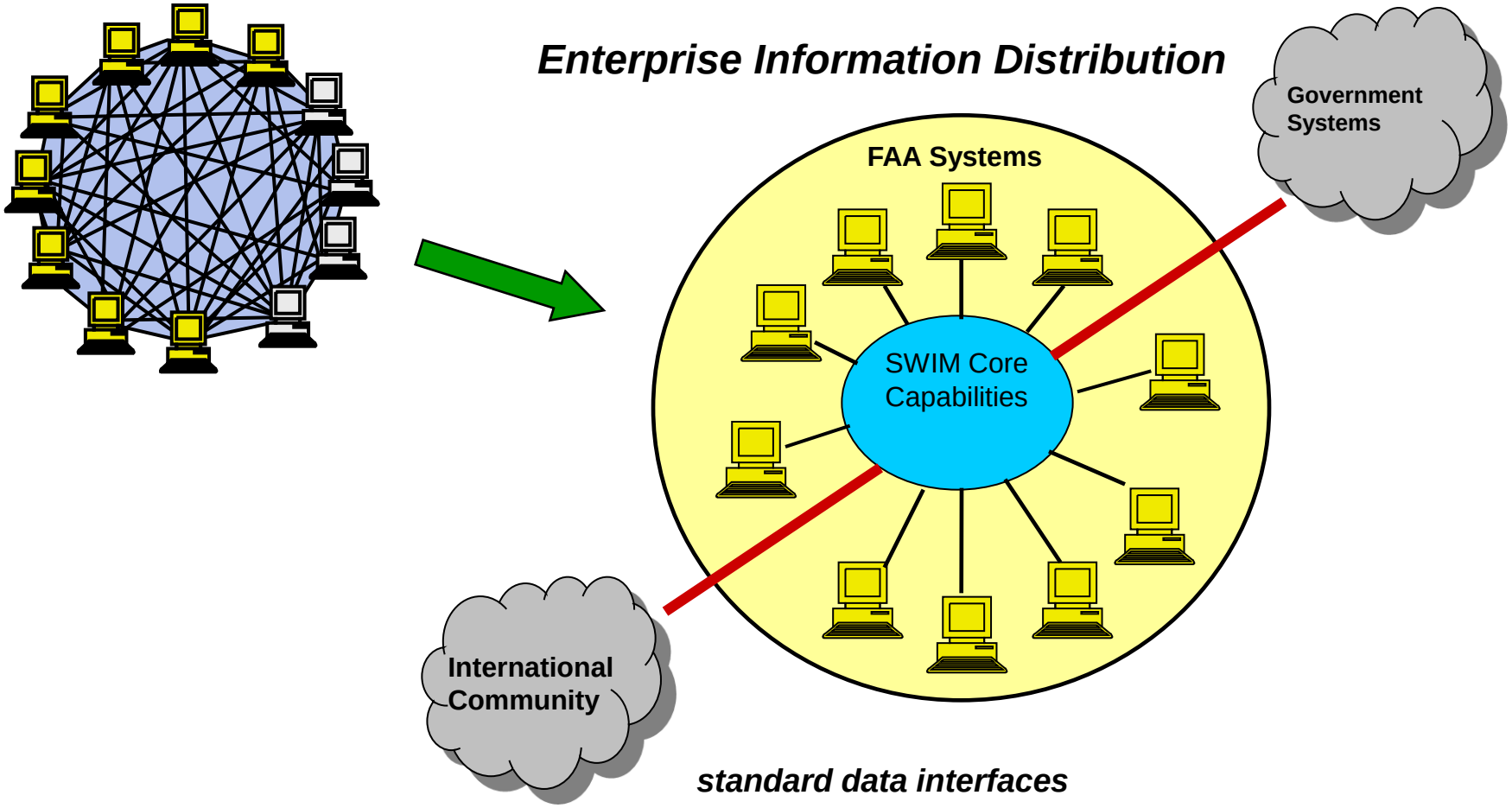


SWIM – System-Wide Information Management

EUTOCONTROL SWIM Concept



FAA Future with SWIM



Air Traffic Management System

The Vision: Optimized, Shared

JEPPESEN
A BOEING COMPANY

ATC

- Separation, safety
- Optimize flow, increase capacity
- Global interoperability

Airline Operations Center

- Flight Planning/Dispatch/Tracking
- Contingencies, Disruption Recovery
- ATC Collaboration

TARGET

- Transformed from Paper to Digital
- Automated processes
- Systems Integration/interoperability
- Intelligent information sharing
- Heavy use of data link communications
- Airplane gets regular/contextual updates
- Modern air traffic management system
- Responsive & pro-active regulatory

Navigation, Flight Optimization

Reference Information

Maintenance Operations

Airport Operations

Cabin Services

Technical & Admin Tasks


THANK YOU